

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	DONG-HOON KIM, ET AL.)	
Serial No.	10/648,523)	Group Art Unit: 2885
Filed:	August 26, 2003)	Examiner: Negron, Ismael
For:	LIGHT GUIDE PLATE AND METHOD)	
	OF FABRICATING THE SAME)	

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In response to the Final Office action mailed February 11, 2008, and in conjunction with the Notice of Appeal filed concurrently herewith, the Applicants submit the following remarks in support of the Pre-Appeal Brief Request for Review:

REMARKS

The present submission is responsive to the Final Office Action of February 11, 2008, in which claims 1, 4-6, 9-62 and 73 are pending in the instant application. Claims 22-57 have previously been withdrawn and claims 2, 3, 7, 8 and 63-72 have been previously canceled. Claims 1, 4-6 and 9-21 are in condition for allowance. Of the remaining pending claims, claims 58-62 and 73 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Ryu et al., U.S. Patent Publication No. 2002/0181223 in view of Ishikawa et al., U.S. Patent No. 5,600,455.

The Examiner states that Ryu discloses all of the elements of claims 58-60, 62 and 73 except, *the protrusion having grooves*, which the Examiner states is disclosed primarily in FIGS. 7 and 10 of Ishikawa. The Examiner states that Ryu further discloses all of the additional elements of claim 61 except, *the plurality of protrusions having substantially identical size being positioned with increasing density as a distance from the light incident surface increases*, which the Examiner further states “would have flown naturally to one of ordinary skill in the art at the time the invention was made”.

Ryu is directed to a light guide panel for a backlight. (See Abstract). Ryu discloses a side-lit light guide plate (“LGP”) 2 including a plurality of cells 21 having various configurations. (See FIGS. 7B). In the embodiments shown in FIGS. 4-6B the cell 21 is not a physical feature of the LGP 2, but rather represents a collection of microcells 211-213. In the embodiment shown in FIGS. 7A and 7B, the cells 21 represent an embossed area on the surface of the LGP 2. In FIGS. 7A-B each cell 21 forms a depression in the LGP 2 and each cell 21 includes a plurality of microcells 214 and 215 which are raised or lowered from the bottom of the depressed cell 21. (See FIG. 7A-7B and paragraph 39).

Ryu fails to teach, suggest or disclose: **a protrusion part formed as a column shape on the first light emission surface, and a light reflection pattern formed on an upper surface of the protrusion part, for reflecting light toward the second light emission surface, the light reflection pattern having a cross-sectional profile of a plurality of V-shaped grooves** as claimed in independent claim 58.

The Examiner states that the cells 21 of Ryu constitute a plurality of protrusions formed on the first light emission surface. (See page 3 of the present Final Office action). The Examiner also states, in response to Applicants’ previous arguments, that the cells 21 were broadly considered to be a protrusion part formed as a column shape because “they are clearly circular and protrude from the surface of the light guide plate 2.”

However, as Applicants have argued in response to a previous Office action, the cells 21 do not constitute a protrusion part formed as a column shape on the first light emission surface as claimed. Firstly, only the microcells 212 of FIG. 6a are shown protruding from the surface of the light guide plate 2; the microcells 213 of FIG. 6b are formed as depressions in the surface of the light guide plate 2, the microcells 214 of FIG. 7a are formed within a depression 21 and do not protrude from the light guide plate 2 (as can be clearly seen in the magnified cross-sectional view of FIG. 7a, the height of the microcells 214 are still below the edge of the light guide plate 2); and the microcells 215 of FIG. 7b are formed as depressions within a depression 12 and do not protrude therefrom. Therefore, only microcells 212 of FIG. 6b would meet the Examiner’s own interpretation of a cell 21 protruding from the light guide plate.

Even if the cells 21 of FIGS. 6a are treated as being the group formed by the plurality of microcells 212 as alleged by the Examiner, the cells 21 are not formed as a column shape on the

light emission surface. The cell 21 as defined by the Examiner does not have a shaft extending to form a column shape, but rather has a plurality of sloping walls extending from each of the microcells 212. Therefore, one of ordinary skill in the art would not interpret the cells 21 as being a protrusion part formed as a column shape as claimed.

Therefore, because Ryu does not disclose a protrusion part formed as a column shape on the first light emission surface as claimed, Ryu also does not disclose a light reflection pattern formed on an upper surface of said protrusion part. Furthermore, as admitted by the Examiner on page 4 of the present Final Office action, Ryu does not disclose any light reflection pattern having a cross-sectional profile of a plurality of V-shaped grooves.

Ryu also fails to teach, suggest or disclose: **a light guide plate including; a light incident surface for receiving light, and first and second light emission surfaces for emitting light, wherein the first emission surface includes a plurality of circular cylinder-shaped protrusions having grooves** as claimed in independent claim 73.

As discussed above in relation to independent claim 58, Ryu does not disclose a plurality of circular cylinder-shaped protrusions having grooves. The cells 21 are not circular cylinder-shaped protrusions, and neither the cells 21 nor the microcells 211-215 have grooves. (See FIGS. 4-7B).

Even if the cells 21 of FIGS. 6a are treated as being the group formed by the plurality of microcells 212 as alleged by the Examiner, the cells 21 are not formed as a circular cylinder shape on the light emission surface. Here, the cell 21 as defined by the Examiner does not have a circular boundary, but rather has irregular edges consisting of a plurality of individual circular peripheries belonging to each of the microcells 212. The cell 21 as defined by the Examiner does not have a shaft extending along the circular boundary to form a cylindrical shape, but rather has a plurality of sloping walls extending from each of the microcells 212. Therefore, because the cells 21 do not have a cylindrical shaft, one of ordinary skill in the art would not interpret the cells 21 as being a protrusion part formed as a circular cylinder shape as claimed.

Therefore, because Ryu does not disclose a protrusion formed as a circular cylinder shape on the first light emission surface as claimed, Ryu also does not disclose a light reflection pattern formed on an upper surface of said protrusion part. Furthermore, as admitted by the Examiner on page 4 of the present Final Office action, Ryu does not disclose any light reflection pattern having a cross-sectional profile of a plurality of V-shaped grooves.

Ishikawa is directed to a prismatic member with coarsened portions or triangular prismatic and semi-circular prismatic members arranged on a flat light emitting surface. (See Abstract). Ishikawa disclose a transparent member 1 disposed above a light guide plate 6. The transparent member 1 includes convex portions 10 and coarsened surfaces 11 disposed on the convex portions 10. (See FIGS. 7-10 and column 3, line 13 through column 4, line 15.)

Ishikawa fails to cure the deficiencies of Ryu as noted above, namely, Ishikawa does not teach, suggest or disclose: **a protrusion part formed as a column shape on the first light emission surface, and a light reflection pattern formed on an upper surface of the protrusion part, for reflecting light toward the second light emission surface, the light reflection pattern having a cross-sectional profile of a plurality of V-shaped grooves** as claimed in independent claim 58.

Ishikawa does not teach a protrusion part anywhere on the surface of the light conducting member 6. The light conducting member 6 is clearly a light guide plate as known in the art as it guides light from the light sources 5 to be emitted in a planar direction to an

outside. (See FIG. 10). Ishikawa also therefore does not teach a protrusion part formed in a column shape and a light reflection pattern in the form a plurality of V-shaped grooves formed on such a protrusion.

It is respectfully submitted that combination of Ryu and Ishikawa in fact teach away from the present application as Ishikawa discloses a separate transparent member 1 disposed **above** a light guide plate 3 having a diffusion plate 7 disposed therebetween, as illustrated in FIG. 10 of Ishikawa.

On the contrary, the present application discloses a **light guide plate** for maximizing the luminance on a display panel of an LCD device without increasing the number of components for the LCD device. (See page 3, lines 5-7 of the specification as originally filed.) Neither Ryu nor Ishikawa disclose a light guide plate having an emission surface as claimed in claim 58.

The light guide plate including a light reflection pattern in claim 58 of the present application designed for an edge type light guide reflects and refracts incident light in a direction toward an LCD panel to improve the brightness of the LCD panel. On the contrary, the coarse surface 11 on the prism of the transparent member 1 functions as light diffusing member to improve light uniformity coming from the underlying light conducting member 6. In addition, the coarsened surfaces 11 do not constitute a **plurality of V-shaped grooves, wherein each of the V-shaped grooves are elongated in a specific direction** as claimed in claim 58 and described in the specification as filed, but rather a random pattern of removed material. (See column 3, lines 30-59). Therefore, the coarsened surfaces 11 do not extend in a direction aligned substantially parallel with the light incident surface as claimed.

Applicants again assert that there would be no motivation to combine the transparent member 1 of Ishikawa with the light guide panel 2 of Ryu because they perform completely different functions within their respective backlight assemblies. The transparent member 1 of Ishikawa disperses light from a direct illumination source, e.g., the light guide plate 6. The light guide plate 2 of Ryu reflects and refracts incident light in a perpendicular direction toward an LCD panel to improve brightness thereof. Neither reference suggests the combination of the coarsened surface 11 of Ishikawa with the cells 21 of Ryu. Therefore, any suggestion to combine would be a result of improper hindsight.

Furthermore, the use of the microgrooves 11 of Ishikawa as the geometrical pattern, i.e., the microcells 212, of Ryu as suggested by the Examiner on pages 4 and 5 of the present Office action, would not produce the claimed invention. If the microcells 212 of Ryu were replaced with the microgrooves 11 of Ishikawa, the microcells 212, which the Examiner relies on to show a protrusion part formed as a column shape would be removed. Furthermore, the microgrooves 11 could not then be formed on an upper surface of the microcells 212.

Finally, the substitution of the microcells 212 of Ryu with the microgrooves of Ishikawa would render the combined apparatus unsuitable for its intended purpose. The microgrooves 11 of Ishikawa are configured to uniformly disperse light as discussed above. The microcells 212 of Ryu are configured to reflect and refract light from within a light guide plate 2 towards an LCD panel disposed substantially opposite thereto. If the microgrooves 11 were substituted for the microcells 212, the resulting apparatus would not be capable of reflecting light incident and interior to the light guide plate towards the light guide plate 2. Instead of refracting light from inside of the light guide plate and directing it towards the LCD panel, the microgrooves would at best diffuse light from inside the light guide plate 2 in all directions, thereby decreasing the

efficiency of the light guide plate 2, and at worst, the microgrooves would not provide sufficient refraction or reflection to allow the light interior to the light guide plate 2 to exit therefrom.

Applicants again assert that neither Ryu nor Ishikawa, alone or in combination, disclose all of the elements of the claimed invention. Applicants also assert that there is insufficient motivation for combining the apparatus of the two inventions and that if combined, the combined apparatus would be rendered unsuitable for its intended use. Therefore, a prima facie case of obviousness does not exist.

Similarly, Ishikawa fails to cure the deficiencies of Ryu as noted above, namely, Ishikawa does not teach, suggest or disclose: **a light guide plate including; a light incident surface for receiving light, and first and second light emission surfaces for emitting light, wherein the first emission surface includes a plurality of circular cylinder-shaped protrusions having grooves** as claimed in independent claim 73.

As discussed above in relation to independent claim 58, Ishikawa does not disclose a plurality of circular cylinder-shaped protrusions having grooves. Applicants again assert that neither Ryu nor Ishikawa, alone or in combination, disclose all of the elements of the claimed invention. Applicants also assert that there is insufficient motivation for combining the apparatus of the two inventions and that if combined, the combined apparatus would be rendered unsuitable for its intended use. Therefore, a prima facie case of obviousness does not exist.

Thus, Applicants submit that neither Ryu nor Ishikawa, alone or in combination, render obvious the subject matter of claims 58 and 73. Claims 59-62 depend directly or indirectly from claim 58, and thus include all of the limitations of claim 58. It is thus believed that the dependent claims are allowable for at least the reasons given for independent claim 58, which is believed to be allowable.

For the above stated reasons, it is respectfully submitted that the final rejection of claims 58-62 and 73 under 35 U.S.C. § 103(a) is in error and that the same are allowable over the art of record. The fee set forth in 37 CFR 41.20(b)(1) is enclosed herewith. However, if any fees are due with respect to this submission, please charge them to Deposit Account No. 06-1130 maintained by Applicants' attorneys.

Respectfully submitted,
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